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ABSTRACT

The purpose of this study was to investigate further the relationship between sex and a decline of intellectual abilities during adolescence and to examine some personality differences between young women who declined in intellectual abilities during adolescence and those who did not. Differences examined were: need to be included, need to be liked, need to be controlled, need to control, view of self as an active person, view of specific jobs as being for one or both sexes and view of the role of women in man/woman relationships. High school seniors (290 girls, 181 boys) from two public and two parochial schools in rual, urban, and suburban areas of New York participated in the study on a volunteer basis. Seventh and twelfth grade IQ scores of each student were compared, and female subjects were given the FIRO-B test, a semantic differential scale on "myself", an inventory of jobs to categorize for males, females or both, and questions on the importance of female inferiority in the dating relationship. The phenomenon of female intellectual decline during adolescence evidenced itself in this study, and young women who declined saw themselves as closer to the passive nonassertive ideal of a woman than did young women who did not decline. (Author/HM)

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> "In the case of girls, particularly bright ones, there is not infrequently an intellectual slowing up during adolescence." (Hemming, 1950, p. 117)
>
> "Even superfi[illegible] observation shows a girl who has previousl[illegible] intellectual, brilliant and promising often [illegible] all these personality values burst like a soap bubble during puberty." (Deutsch, 1942, p. 42)

The purpose of this study was to further investigate the relationship between sex and a decline of intellectual abilities during adolescence. It also went one step further and examined some personality differences between young women who declined in intellectual abilities during adolescence and those who did not.

Some of the differences that were examined included the need to be included, the need to be liked, the need to be controlled, the need to control, the view of self as an active person, the view of specific jobs as being for men, for women or for both men and women and the view of the role of women in man/woman relationships.

Several studies over the years have been done which supported the existence of this phenomena. Terman (1936), Jones and Conrad (1933) and Garrett et al. (1935) all found the phenomena existing in the 1930's. In the work that has been done since then, Macfarlane and Sontag (1954), Maccoby (1966) and Hopkins (1971), all tend to substantiate these findings. Boys tend to maintain their IQ scores better than girls, no matter what the IQ score. (Hernstein, 1971) Based on these studies it was hypothesized that adolescent women would decline in intellectual abilities in greater numbers and to a greater degree than would adolescent men.

The relatively new and growing interest in women and their potential is causing people to question not if the decline occurs but why. Little evidence has been given to support a biological cause (Hamburg and Lunde, 1966) while more evidence has been given to support a sociological cause (Deutsch, 1944: Horney, 1967) and much evidence has been given to support a sociological or societial cause (Bardwick and Douvan, 1971; Minuchin, 1964; Bem and Bem, 1970; Gardner, 1970). However before a definitive "why" can be given it is necessary to determine some of the similarities and differences between young women who experience the decline and young women who do not. No differences have been found in regard to mental growth rate, home environment, ethnic background, unbalanced personality, level of intelligence (Terman, 1936) and level of education (Bardwick, 1971). The only other possible difference that has been examined is that girls who vocalize the philosophy that "it is smart for a woman to be dumb" are more apt to decline than girls who don't vocalize that philosophy (Macfarlane and Sontag, 1954)

The current study sought to find differences between "decliners" and "non-decliners" in some personality characteristics, and in their responses to some social stimuli It was hypothesized that the responses of the adolescent women who declined in intellectual abilities would differ from the response of the adolescent women who did not decline.

More specifically, it was hypothesized that adolescent women who declined would score higher on the need to be liked, and the need to be included than would adolescent women who did not decline. It was hypothesized that these results would occur because in order to be liked and included, the young women must be responsive to the pressures of others, particularly peers. These peer pressures are often helpful in reinforcing

society's view of the undesirability of feminine intellectual success. (Entwisle and Greenberg, 1971; Coleman, 1961)

Also it was hypothesized that adolescent women who declined would score higher on the need to be controlled and lower on the need to control than would adolescent women who did not decline. Also adolescent women who declined were expected to rate themselves as being less active than those who did not decline.

These results were expected to occur because there has been found a tendency for passive dependent persons to perform poorly on a variety of tasks including intellectual ones. (Maccoby, 1966) Also adolescent women who internalize the social dictates on dependence and passivity, would be apt to internalize the idea of feminine intellectual inferiority and conform to it as they do the others.

In order to test these hypothesis, a sample of 471 high school seniors (290 girls, 181 boys) from two public and two parochial schools in rural, urban and suburban areas of New York State were selected. About 38% of the sample (179) students came from schools run by the Sisters of the Presentation, a Roman Catholic order of sisters, while the rest of the subjects came from public schools (292 students). These schools, which were all co-educational, were selected because they represented the various population areas of the state and because they would allow access into student records.

All of the subjects who participated in the study were volunteers. (A total of two students refused to participate.)

The school records of the subjects were examined to determine their I.Q. score at the beginning of adolescence (seventh grade) and the type of I.Q. test they had taken. At the end of adolescence (twelfth grade) the subjects were given an I.Q. test of the same type that they had

taken previously. Three schools took the Otis Quick Scoring Mental Abilities test and one school took the Lorge-Thorndike Intelligence Test. The results of these tests were compared to determine changes in I.Q. scores and a "t" test was used to determine if there were significant differences in the changes in I.Q. between the young men and the young women.

Once the scores were collected, the I.Q. scores of each young woman were examined to see if a decline had occurred. A delcine was defined as a loss in I.Q. points greater than the sum of the standard error of measurement of the test and the mean I.Q. change for the young men, if that change was negative. The mean I.Q. change of the young men's scores was included in the definition of decline in order to account for the amount of change due to the principle of regression to the mean.

The young women subjects were then divided into two groups, those who experienced the decline and those who did not. Both groups were given the FIRO-B test, a semantic differential scale on "myself," an inventory of jobs to categorize as jobs for males, females or both and questions on the importance of women in man/woman relationships.

The scores of these two groups were compared through the use of the "t" test and the chi square test.

An analysis of the data indicated that during adolescence the young women experienced a mean loss in I.Q. points of 1.33 points while the young men experienced a mean gain of 1.62 points. This difference was significant at the .01 level.

Table 1

THE MEANS* AND STANDARD DEVIATIONS FOR THE DIFFERENCES IN IQ SCORES BETWEEN YOUNG MEN AND WOMEN AT THE BEGINNING AND END OF ADOLESCENCE

	IQ Difference Mean	Standard Deviation of IQ Difference
Young Men	1.62	11.6
Young Women	-1.33	11.3

*The difference between the means is significant: $t = 2.34$; $df = 470$; $p < .01$

The data were also examined as to the number of young men and women who experienced a gain or loss in IQ greater than the standard error of measurement of the test. As Table 2 indicates, 19.3% (56) of the young women gained, while 33.2% of the young men gained. When the losses were examined, 29.9% of the young women declined while 22.2% of the young men declined. The pattern of gains and losses by sex was found to be significantly different at the .005 level.

Table 2

THE NUMBER* OF YOUNG MEN AND WOMEN EXPERIENCING CHANGES IN IQ SCORES GREATER THAN THE STANDARD ERROR OF MEASUREMENT OVER ADOLESCENCE

	Gained		Lost		Remained Constant	
	No.	%	No.	%	No.	%
Young Men	60	33.2	40	22.2	81	44.6
Young Women	56	19.3	84	29.0	150	51.7

*The differences between groups are significant: $x^2 = 11.77$, $df = 2$, $p < .005$

It thus would appear that the first hypothesis was substantiated and that during adolescence young women declined in intellectual abilities, as measured by IQ scores, in greater numbers and to a greater degree than did young men.

Sixty-nine young women were classified as "decliners" and their

responses to the questionnaires were compared to the 221 young women who were classified as "non-decliners." As Table 3 indicates the "decliners" had significantly lower needs to control others than did the young women who did not decline.

Table 3

A COMPARISON OF THE NEED STRUCTURES OF YOUNG WOMEN WHO DECLINED IN INTELLECTUAL ABILITIES DURING ADOLESCENCE AND YOUNG WOMEN WHO DID NOT
(Maximum Score EQUALS NINE)

	"Decliners"		"Non-decliners"		
	Mean	Standard Deviation	Mean	Standard Deviation	t
Need to control	1.07	1.70	1.57	1.83	2.00*
Need to be controlled	3.16	1.96	3.12	2.00	0.13
Need to be liked	5.31	2.26	5.12	2.63	0.50
Need to be included	4.68	3.42	4.15	3.46	1.11

*$p < .05$

A comparison of the "decliners" and the "non-decliners" on the need to be controlled by others and the need to be liked by others showed no significant differences between the two groups. There was however a tendency (although not significant) for the "decliners" to have higher needs to be included than the "non-decliners."

The young women were also compared as to their ratings of self as an active person. Using a semantic differential scale with eight adjective pairs denoting activity, it was found that the young women who declined rated themselves as being significantly less active than did the young women who did not decline.

Table 4

MEANS* AND STANDARD DEVEIATIONS ON THE VIEWS OF SELF AS AN ACTIVE PERSON BETWEEN GIRLS WHO DECLINED IN INTELLECTUAL ABILITIES DURING ADOLESCENCE AND GIRLS WHO DID NOT
(Maximum Score EQUALS SEVEN)

	Mean	Standard Deviation
Young women who declined	5.18	0.87
Young women who did not decline	5.40	0.81

*Difference between means is significant:
$t = 1.90$: $df = 280$: $p < .05$

The young subjects were asked to rank a list of twenty jobs as being primarily jobs for women, jobs for men or jobs for both men and women. The list included jobs that were traditionally male (truck driver, dentist), jobs that were traditionally female (secretary, elementary school teacher), and jobs that were neither male or female (author, high school teacher).

Overall, there were no significant differences between the way that young women who declined in abilities ranked the jobs and the way that young women who did not decline ranked the jobs. However, in fourteen of the twenty jobs, young women who did not decline were more apt to rate a job as being for both men and women, than were young women who declined.

Finally, the subjects were asked four questions dealing with their perceptions of the importance of female inferiority in the dating relationship. It was hypothesized that young women who declined would find the role of female inferiority more important than would young women who did not decline. The data however did not bear this out. There were no significant differences in how the groups responded to being asked if they had ever acted smarter than they were to impress a

date. The responses of the two groups were also similar when they were asked if it was wise to play dumb to impress a date and if they thought that boys would go out with smart girls. About 76% of both groups felt that at least some of the time, boys would not go out with smart girls.

When the subjects were asked if they had ever "played dumb" to impress a date, 53.8% of the "decliners" said that they had played dumb to impress a date, while 46.6% of the "non-decliners" said that they had.

Table 5

THE RESPONSES AND PERCENTAGES OF THE GIRLS WHO DECLINED DURING ADOLESCENCE TO THE QUESTIONS ON THE DATING RELATIONSHIP TO THE RESPONSES AND PERCENTAGES OF THE GIRLS WHO DID NOT DECLINE

Number/Percentage

1. It has been said that boys won't go out with smart girls. Do you think that this statement is true?

	All of the time	Most of the time	Some of the time	None of the time
Young women who declined	0/0	6/8.7	53/76.8	10/14.5
Young women who did not decline	0/0	13/6	162/75.3	40/18.6

$x^2 = 1.064$

2. Have you ever "played dumb" or acted less smart than you are in order to impress a date or a potential date?

	Frequently	Occasionally	Rarely	Never
Young women who declined	1/1.3	15/19.2	26/33.3	36/46.2
Young women who did not decline	6/2.9	40/19.2	51/24.5	111/53.4

$x^2 = 2.80$

3. Have you ever acted smarter than you are in order to impress a date or a potential date?

	Frequently	Occasionally	Rarely	Never
Young women who declined	0/0	16/23.2	18/26.1	35/50.7
Young women who did not decline	2/.9	41/19	23/33.8	100/46.3

$x^2 = 2.29$

4. Do you think it wise to "play dumb" or act less smart than you are in order to impress a date or a potential date?

	All of the time	Most of the time	Some of the time	None of the time
Young women who declined	0/0	0/0	26/37.7	43/62.3
Young women who did not decline	0/0	2/0	41/32.7	144/66.4

$x^2 = 1.15$

$^*p < .05$

The results have shown that a definite relationship between sex and a change in intellectual abilities during adolescence exists. Overall, young women show a decrease in IQ scores while young men show an increase. Upon dividing the young women subjects into groups of "decliners" and "non-decliners," it was found that decliners rated themselves as less active with less needs to control than non-decliners.

All this seems to indicate that declines in intellectual abilities of adolescent women may be sociological in nature. Young women who declined saw themselves as being closer to the passive non-assertive ideal of a woman than did young women who did not decline. Since part of that ideal is not to be smarter than the men, it would appear that young women who decline are again fitting themselves to the feminine ideal by ignoring or not using their abilities.

The tendency of young women who decline to be closer to the feminine ideal also gives some clues on how to discover young women who are

likely to experience the decline. Although the study was not a longitudinal one and dealt only with some of the characteristics of those who had already experienced the decline, it seems reasonable to assume that some of these characteristics dealt with were present during adolescence.

The study has also shown that despite the renewal of the woman's movement, the increasing number of women in the work force and the increased awareness of discrimination in the schools, the phenomena of feminine intellectual decline that existed in the 1930's and 50's is still evident in the 70's. With this realization should come the realization that current changes outside the school are not sufficient in size or strength to counteract the decline in IQ scores.

Home environment has been found to have little effect on this decline (Terman, 1936), while school environment and the sex-typing within the school appear to have much influence (Minchin, 1964). The school has a responsibility to take action, to become a direct positive influence in the development of the intellectual potential of all of its students, male and female.

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